

ABSTRACT OF THE DISCLOSURE

5 A system and method for manipulating magnetic particles in a solution to
separate nucleic acid molecules from cell components in a cell solution. The system and
method employ a device capable of receiving a plurality of tubes, each of which contain
respective sample and paramagnetic particles. The device includes heating and cooling
10 devices to facilitate a lysing step to release the nucleic acid molecules from the cells in
the cell solution. The device further includes moveable magnets which can be moved
proximate to and away from the tube to hold the paramagnetic particles to which the
nucleic acid molecules become bound, so that the molecule-bound particles can be
15 separated from the remainder of the solution, and washed as appropriate. The system
also employs an electromagnet which is capable of demagnetizing the particles to allow
the particles to freely mix with solution, such as elution solutions which are used to
unbind the molecules from the particles.